



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D350-636-011
Job Sheet 178939



Part No: D350-636-011

Job Qty: 1 ea

Part Name: Skidtube LH, Std Wearplates, DART (Apical) Cylindrical/Aerazur Float Comp.



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/11/18

Job Tracking No:

Due Date: 7/6/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: D2750-041 REV G SHEETS 1,2,4,8 IPP Rev:I 02.09.25 IPP Rev:J 06-03-23 As per Rev D IPP Rev:K 06-07.13
As per dsi9343 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Ver:EC IPP Rev:M 08-04-22 DD
verified:EC IPP Rev:N 08-09-23 revF DD verified:ec IPP Rev:O 09-02-06 per PAR09-010 DD ver:EC IPP
Rev:P 10.06.22 revise seq110 DD ver:EC IPP Rev:Q 10.10.01 as per IIN revH DDver:EC IPP REV:R
13.08.27 PER ECN13-594 DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	7/6/18	7/6/18	0.00	0.00	Start Up Skidtubes-1		M126
110	Skidtubes	1 pcs	7/6/18	7/6/18	0.00	4.55	Skidtubes-4		M126 JLG
120	QC	1 pcs	7/6/18	7/6/18	0.00	0.00	QC10		18-06-23
130	QC	1 pcs	7/6/18	7/6/18	0.00	0.00	QC5		18-06-23
140	HandFinish	1 pcs	7/6/18	7/6/18	0.00	0.93	HandFinish1		SA 18-07-04
150	QC	1 pcs	7/6/18	7/6/18	0.00	0.00	QC7-2		18-07-05
160	Skidtubes	1 pcs	7/6/18	7/6/18	0.00	4.55	Skidtubes-4		BE
170	QC	1 pcs	7/6/18	7/6/18	0.00	0.00	QC10		38 DAS
180	QC	1 pcs	7/6/18	7/6/18	0.00	0.00	QC5		38 DAS
190	HandFinish	1 pcs	7/6/18	7/6/18	0.00	0.93	HandFinish2		SA 18-07-18
200	SprayPaint	1 pcs	7/6/18	7/6/18	0.00	0.91	Spray Paint		AR JUL 20 2018
205	Outsource	1 pcs	7/6/18	7/6/18			ATE003-VC		NR
210	QC	1 pcs	7/6/18	7/6/18	0.00	0.00	QC14		18-7-23
230	HandFinish	1 pcs	7/6/18	7/6/18	0.00	0.93	HandFinish4		38 18-07-30
240	QC	1 pcs	7/6/18	7/6/18	0.00	0.00	QC5		18-07-03
250	Packaging	1 pcs	7/6/18	7/6/18	0.00	0.00	Packaging1-3		AUG 09 2018
260	QC	1 pcs	7/6/18	7/6/18	0.00	0.00	QC4		AUG 09 2018
270	Packaging	1 pcs	7/6/18	7/6/18	0.00	0.00	Packaging3-1		AUG 09 2018
275	DC	1 pcs	7/6/18	7/6/18	0.00	0.00	DC		AUG 20 2018
280	QC21-FG	1 Ea	7/6/18	7/6/18	0.00	0.00	QC21		AUG 20 2018

Part Op 110 - 1- Pick D2600-3 Bent 2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg
Descriptions: D2750-1 3- Drill pilot holes for blade fitting bolt holes using DT8983. Start with 3/16", then open to 0.500" using center drill
then ream holes using 0.500" reamer. PIN first side. Repeat process on second side. ***ENSURE PROPER
POSITIONING FWD BEND MUST BE FACING UP WHEN DRILLING FIRST SIDE*** Drill pilot holes as per Dwg D2750
sheet 4 (D2750-1 details). Drill using drill Jig DT8150 & DT8863A for 2nd side only DT8863B for first side (detail B) 4-
Locate DT8330 off of blade fitting bolt holes and drill pilot holes for blade fitting. Open to 0.500" using hole saw. VERIFY
AND RECORD FWD BEND ANGLE. 5-Drill pilot holes for wearplates as per Dwg D2750 using DT8108 open to 0.297".
6-Open up holes of Detail A to 0.297" (total of 2 holes per side) 7-Weld D2744 Cap as per Dwg D2750 and QSI 004.Fill
grooves in bend left from bending as per QSI 004 A/R Aluminum Rod batch: 138834 8-Grind welds flush as per Dwg
D2750
160 - 1-Open up holes using hole saw of Detail C and ground handling to 0.625" (total of 8 holes per side) as per dwg
D2750. 2-Open up holes using hole saw of Detail B to 0.750" (total of 4 holes per side) as per dwg D2750. 3- Open float

DQA: _____ Date: _____
QA Closed: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only



Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS	
Part No. _____		Rework ☐	Skid-tube ☐	Water Jet ☐	Engineering ☐
NCR No. _____		Scrap ☐	Machining ☐	Eng. Coord. ☐	Quality ☐
		Use-as-is ☐	Thermoforming ☐	Packaging ☐	Other ☐
		Suspected Unapproved ☐	Large Fab ☐	Supplier ☐	
Date: _____	Step #: _____	QTY: _____		MRB (QS1042) Approval _____	
Description Work Order Deviation					
Completed By _____					
Lead hand / Supervisor _____ Approval Verification _____					
Coordinator _____ Approval _____					
Date: 06/20/18					
Root Cause					
Environment	☐	No Re-verification	☐	Pressure/_____	☐
Design	☐	Operator	☐	Bending	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not C.	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripp	☐
Material	☐	Use for Testing	☐	Cuffs	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐
Past Expiry Date	☐	Manufacturing Process	☐		☐
Misidentified	☐	Past Due	☐		☐
OTHER: _____					

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DART
AEROSPACE
Container No: S082575
Part: D350-636-011
Job No: 178939
Serial No/Batch: S082575
Revision: _____
Inspector: _____
Exp Date: _____
Instructions: _____

100 Short
Instructions Incomplete/Unclear
Drill Holes

Grain _____
Weld _____
Wrong Stock Pulled _____
Out of Sequence _____
Off-set _____
Misabeled _____
Fit/Function _____
Misaligned/off center _____
Positioned Wrong _____
Outside Dimensions _____
Over/Under tolerance _____
Part Incorrect _____
Part Lost/Missing _____
Part Moved _____
Drawing _____
Finish _____
Misread _____
Turning Sequence _____

hole using un-bit to 0.500" (4 per side) 4-Chamfer holes of Detail B, C, ground handling and float holes per dwg D2750 (welding instructions on sheet 8) 5-Deburr and blow out all chips from inside of tube 6- Prepare tube for welding, remove alodine as required. 7-Bond web D2739 in place as per QSI 015, let cure for 12hrs. A/R Sikaflex-291 batch: exp. date: 138834 ***ATTN: USE I-BEAM LOCATION AID (BLADE FITTING)*** 8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D2750 & QSI004 (welding instructions on sheet 8) A/R Aluminum Rod batch: 138834 9- At section AJ-AJ drill out x-bolt spacer to 0.404" 10-Grind welds flush as per Dwg D2750 11-Spot face ground handling holes section (total of 4 places per side) as per dwg D2750 12-Deburr holes, ensure tube is free of all scratches before sending to paint.

180 - ***VERIFY C'BOARD IS GOOD***

190 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

200 - 1- PRIME AS PER DWG AND QSI 005 4.2 PRIMER PRC DESOTO 515X349 BATCH: 5084461 2-

PAINT WHITE AS PER DWG AND QSI 005 4.2 PAINT BATCH: 138886

210 - Inspect for foreign object per QSI 024

230 - 1- Install inserts as per Dwg D2750 2-Inspect for Foreign Objects 3- Install blade fitting D3488-041, wearshoes and ground handling hardware as per dwg D2750 SIKA FLEX 241 BATCH: M1138782 EXP DATE: 18112 4-

Assemble o'ring to plug as per dwg D3492 and apply o'ring lube A/R 55-o'ring lube batch: M1138242 5- Coat all exposed fasteners with "LPS Procyon" batch: M1133690

260 - *****ensure antiseize is on AN8C21A bolts*****

270 - Package as per PPP D350-636-011 Location : FG072

275 - record fwd angle: 69.9 Photocopy blue file and type labels per PPP D350-636-011 CHG 007

Job BOM

004596

Part / Item	Component Name	Quantity	Operation	Container
D2600-3-BENT-LH	Extrusion Bent LH	1 Ea (1 ea)	90-Start up Operation	5082073
D2744	Cap	1 Ea (1 ea)	110-Skidtubes	5063692
D2739	350 I-Beam	1 Ea (1 ea)	160-Skidtubes	5079769
D2743	Crossbolt Spacer	8 Ea (8 ea)	160-Skidtubes	5082601
D3490-1	Cross Bolt Spacer	4 Ea (4 ea)	160-Skidtubes	5066863
D3490-3	Cross Bolt Spacer	4 Ea (4 ea)	160-Skidtubes	5066254
AN3C5A	Bolt	34 Ea (34 ea)	230-HandFinish	5057158
AN3C6A	Bolt	4 Ea (4 ea)	230-HandFinish	5076000
AN6C44A	Bolt	4 Ea (4 ea)	230-HandFinish	5066333-1
AN8C35A	Bolt	1 Ea (1 ea)	230-HandFinish	F14137203
D2745	Bushing	8 Ea (8 ea)	230-HandFinish	5082489
D3488-041	Blade Fitting LH	1 Ea (1 ea)	230-HandFinish	x5092787
D3492-1	Plug	8 Ea (8 ea)	230-HandFinish	5077552
D3492-3	Plug	8 Ea (8 ea)	230-HandFinish	5072782
D3535-25	Wearplate Center	1 Ea (1 ea)	230-HandFinish	5080560
D3536-25	Gasket Center	1 Ea (1 ea)	230-HandFinish	5081721
D3537-1	Wearpad	3 Ea (3 ea)	230-HandFinish	5070788
D3631-1	Washer	8 Ea (8 ea)	230-HandFinish	5058407
D3791-1	Wearpad	1 Ea (1 ea)	230-HandFinish	5071379
D3793-1	Wearplate Fwd	1 Ea (1 ea)	230-HandFinish	5070839
D3793-3	Wearplate Aft	1 Ea (1 ea)	230-HandFinish	5072081
D3794-1	Gasket Fwd	1 Ea (1 ea)	230-HandFinish	5071932
D3794-3	Gasket Aft	1 Ea (1 ea)	230-HandFinish	5046513
MS21043-6	Nut	4 Ea (4 ea)	230-HandFinish	5083542
MS21083C8	Nut	1 Ea (1 ea)	230-HandFinish	5050046-1
NAS1149C0332R	Washer	38 Ea (38 ea)	230-HandFinish	5056493
NAS1149C0832R	Washer	1 Ea (1 ea)	230-HandFinish	M1138409421
NAS1515H3L	Washer	4 Ea (4 ea)	230-HandFinish	5036714
NAS1611-010	O-Ring	8 Ea (8 ea)	230-HandFinish	5049970
NAS1611-013	O-Ring	8 Ea (8 ea)	230-HandFinish	5072889
ALS4-1032-225	Rivnut	38 Ea (38 ea)	230-HandFinish	5058138
AN8C21A	Bolt	2 Ea (2 ea)	250-Packaging	F132162
D2741	Replacement Blade	1 Ea (1 ea)	250-Packaging	5062365
D3493-1	Washer	2 Ea (2 ea)	250-Packaging	5055435
D3532-1	Spacer	2 Ea (2 ea)	250-Packaging	2050421
MS21083C8	Nut	2 Ea (2 ea)	250-Packaging	2050046
NAS1149D0863J	Washer	2 Ea (2 ea)	250-Packaging	F125635

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D2600-3-BENT-LH	1	3	0

110-Skidtubes	D2744	1	77	0
160-Skidtubes	D2739	1	9	0
	D2743	8	78	0
	D3490-1	4	124	0
	D3490-3	4	103	0
230-HandFinish	ALS4-1032-225	38	4,690	0
	AN3C5A	34	1,863	0
	AN3C6A	4	432	0
	AN6C44A	4	323	0
	AN8C35A	1	55	0
	D2745	8	57	0
	D3488-041	1	13	0
	D3492-1	8	328	0
	D3492-3	8	159	0
	D3535-25	1	15	0
	D3536-25	1	22	0
	D3537-1	3	116	0
	D3631-1	8	875	0
	D3791-1	1	27	0
	D3793-1	1	20	0
	D3793-3	1	20	0
	D3794-1	1	46	0
	D3794-3	1	20	0
	MS21043-6	4	208	0
	MS21083C8	1	109	0
	NAS1149C0332R	38	5,937	0
	NAS1149C0832R	1	447	0
	NAS1515H3L	4	171	0
	NAS1611-010	8	509	0
	NAS1611-013	8	405	0
250-Packaging	AN8C21A	2	102	0
	D2741	1	78	0
	D3493-1	2	43	0
	D3532-1	2	26	0
	MS21083C8	2	109	0
	NAS1149D0863J	2	93	0

Part Specifications

Specifications could not be found.

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D2750-041	350 SKIDTUBE ASSEMBLY, LH
	X			D2750-042	350 SKIDTUBE ASSEMBLY, RH
		X		D2750-043	350 SKIDTUBE ASSEMBLY, LH
			X	D2750-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D2750-1	SKIDTUBE WELDMENT, LH
	1			D2750-2	SKIDTUBE WELDMENT, RH
		1		D2750-3	SKIDTUBE WELDMENT, LH
			1	D2750-4	SKIDTUBE WELDMENT, RH
1		1		D3488-041	BLADE FITTING, LH
	1		1	D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
1	1	1	1	D3535-25	WEARSHOE
1	1	1	1	D3536-25	GASKET
3	3	3	3	D3537-1	WEARPAD
8	8	8	8	D3631-1	WASHER
1	1	1	1	D3791-1	WEARPLATE
1	1	1	1	D3793-1	WEARSHOE
1	1	1	1	D3793-3	WEARSHOE
1	1	1	1	D3794-1	GASKET
1	1	1	1	D3794-3	GASKET
38	38	38	38	ALS4-1032-225	INSERT (OR ALS7-1032-225, AKS4-1032-225, AELS-1032-225)
34	34	34	34	AN3C5A	BOLT
4	4	4	4	AN3C6A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
38	38	38	38	AN960C10L	WASHER
1	1	1	1	AN960C816L	WASHER
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

GENERAL NOTES:

- MATERIAL: MAKE D2750-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- FINISH: ACID ETCH, ALODINE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
STANDARD: PRIME (REF. 4.2.1.3.3) AND PAINT WHITE PER DART QSI 005 4.2
OPTIONAL: POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: D2750-041/-042/-043/-044 = 28.5 LBS
- WELD PER DART QSI 004
- INSTALL ALS4-1032-225 INSERTS AFTER FINISH AS INDICATED. DRILL 'F' SIZE HOLES ($\phi 0.297$) FOR WEARSHOE INSERTS
- FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
MINIMUM YIELD TENSILE STRENGTH = 35 KSI
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF FINISH WITH MEK DEGREASER
- SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

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WITHOUT NOTICE
WORK ORDER
NO. 178939 MJS
1X0611

RELEASED
2013-08-13
ND

G	CORRECTED TOLERANCE ON $\phi 0.500$ THRU HOLE: IS $+0.010/-0.000$, WAS $+0.100/-0.000$ (ZN B3-4, B2-5); ADD VIEW TO CONTROL FWD BEND ORIENTATION (ZN D-1-4/-5-6/-7); UPDATED FINISH OPTIONS: INSIDE OF TUBE NO LONGER SPRAYED WITH LPS-3. REASON: PARTS-276 AND NCR13-2757	MB	13.07.11
F	INCORPORATE DSI 8413; QTY (3) D3537-1 WAS QTY (5) (ZN C8-1); D3791-1/-3 REPLACES D3535-13/-35 (ZN C8-1); D3794-1/-3 REPLACES D3536-13/-35 (ZN B8-1); ADD D3791-1 (ZN C8-1); WEARSHOE HOLES UNDER FWDIAFT SADDLE REMOVED (8 PL); WEARSHOE HARDWARE QTY UPDATED (ZN B8-1); D3488-041/-042 HARDWARE UPDATED (ZN C1-8, 9, 10, 11); ADD NOTE 12 AND 13 (ZN A6-1); REASON: REF. NCR 08-043	PH	08.07.16
E	CHANGE TO STAINLESS STEEL WEARPLATES; ADD RUBBER GASKETS, CHANGE INSERTS; ADD D3631-1; REMOVE QTY (38) NAS1515H3L; REMOVE QTY (10) NAS1515H8L; REMOVE D2741, QTY (2) AN960C816; REMOVE QTY (2) MS21083C8	CB	07.05.17
D	ADD HOLES AND SPACERS FOR APICAL FLOATS; INCORPORATE DEO 9133/9157	PH	06.01.05
C	ADD D2750-3/D2750-4; INCORPORATE D2738 AND D2740	CP	98.11.18
B	CHANGE MS24694-S293 TO AN8-16A	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
REV.	DESCRIPTION	BY	DATE
DESIGN	MM		
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	13.07.11		

DART AEROSPACE USA, INC.

KENT, WA

DRAWING NO.

D2750

REV. G

SHEET 1 OF 11

TITLE

350 SKIDTUBE ASSEMBLY

SCALE

NTS

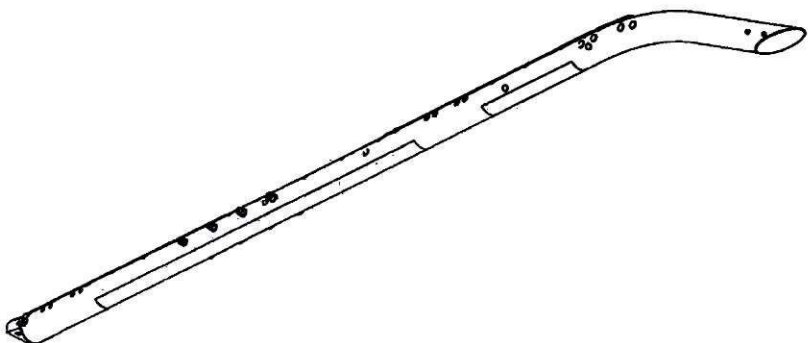
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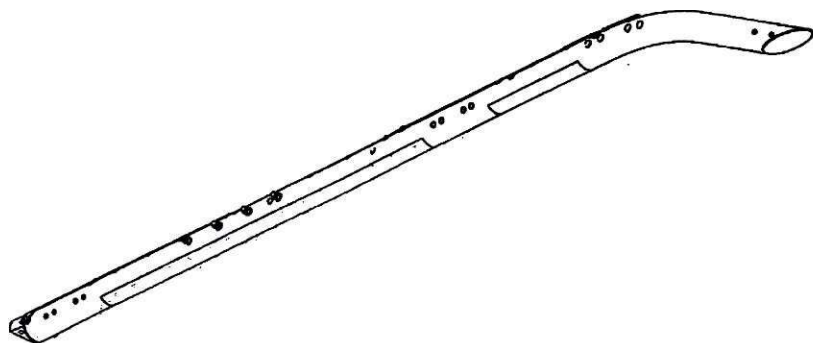
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DRAWING NO. D2750	
REV. G	
SHEET 2 OF 11	
SCALE NTS	
DART AEROSPACE USA, INC. KENT, WA	

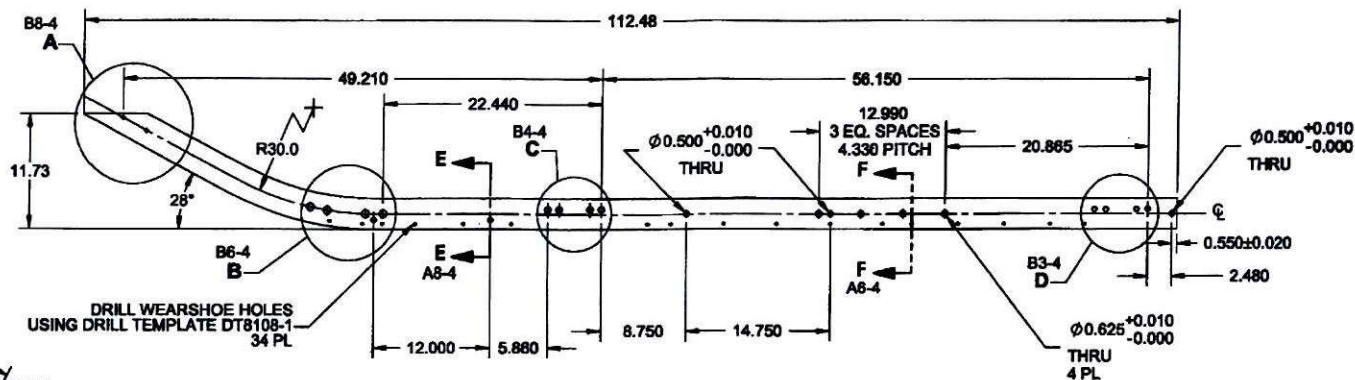
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2013-08-13
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D2750-042 350 SKIDTUBE ASSEMBLY, RH

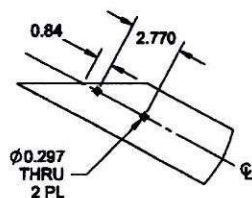


D2750-041 350 SKIDTUBE ASSEMBLY, LH

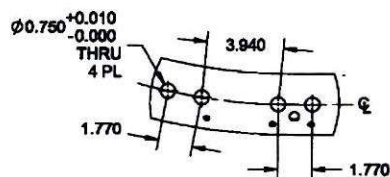




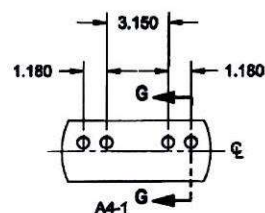
D2750-1 LH SKIDTUBE



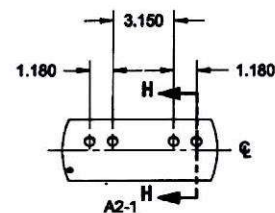
DETAIL A
SCALE 2X



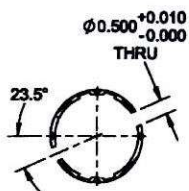
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SCALE 2X



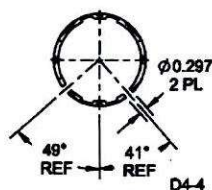
DETAIL C
SCALE 2X



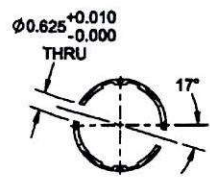
DETAIL D
SCALE 2X



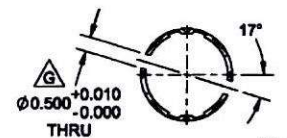
SECTION E-E
SCALE 3X, 2 PL



SECTION F-F
SCALE 3X, 17 PL



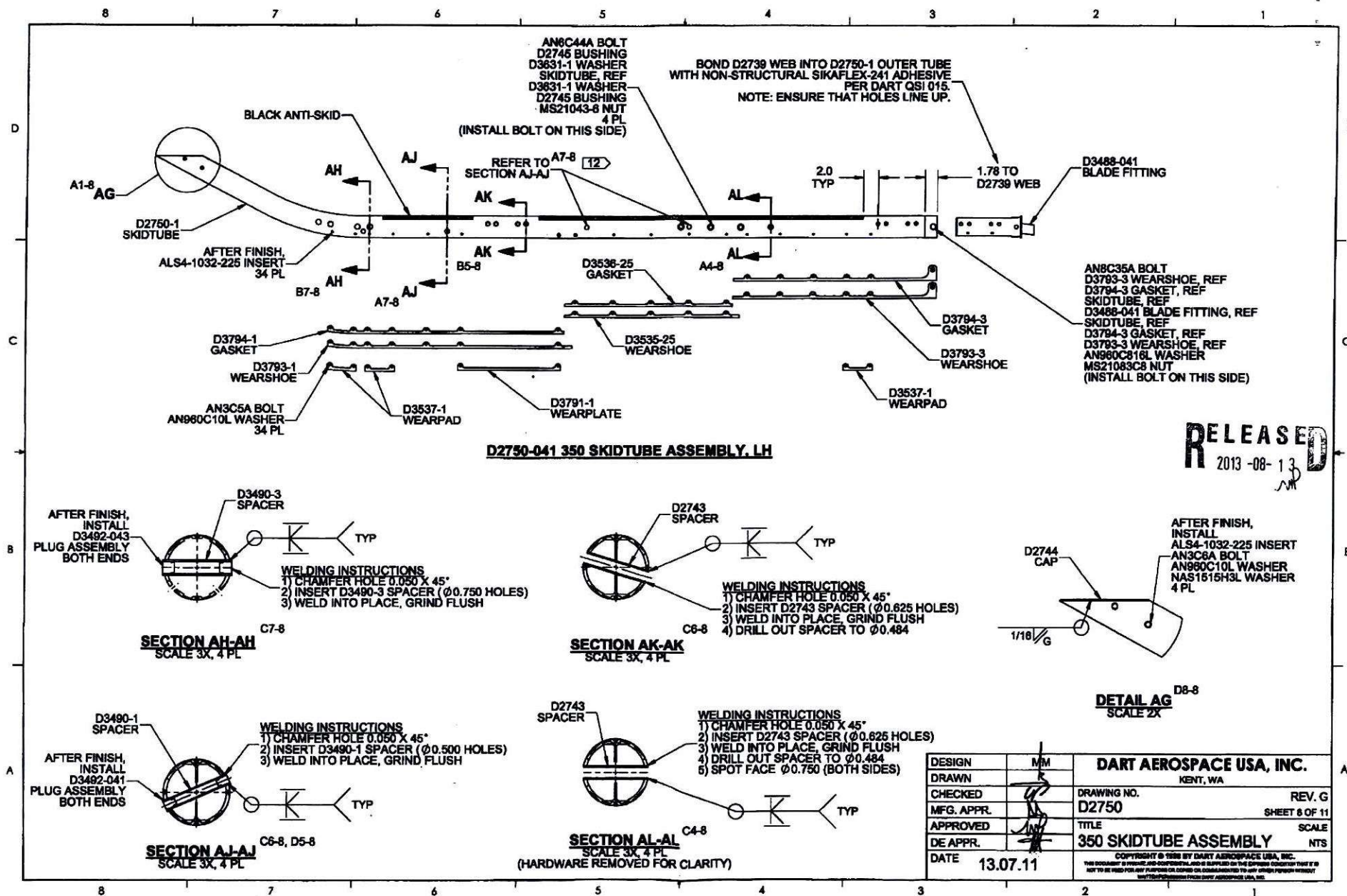
SECTION G-G
SCALE 3X, 4 PL



SECTION H-H
SCALE 3X, 4 PL

RELEASED
2013-08-13

DESIGN	MM	DART AEROSPACE USA, INC.	
DRAWN		KENT, WA	
CHECKED		DRAWING NO. D2750	REV. G
MFG. APPR.		TITLE	SHEET 4 OF 11
APPROVED		350 SKIDTUBE ASSEMBLY	
DE APPR.		SCALE NTS	
DATE	13.07.11	COPYRIGHT © 1988 BY DART AEROSPACE USA, INC.	



Kim Johnston

From: Sonia Quirion
Sent: Thursday, August 09, 2018 9:10 AM
To: Kim Johnston
Subject: l/b

D350-636-012 S080389

D350-636-011 S082895 S082575 red and white please

PAGE 1 OF 1

Description: SKIDTUBE STD LH/RH, FLOAT COMPATIBLE

[illegible]